



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,283	01/30/2004	Eiichi Ono	248317US0	4282
22850	7590	09/22/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			BROADHEAD, BRIAN J	
		ART UNIT	PAPER NUMBER	
		3661		
DATE MAILED: 09/22/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/767,283	ONO	
Examiner	Art Unit		
Brian J. Broadhead	3661		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 30 January 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-28 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-6,8,11,13-19,21,24 and 26-28 is/are rejected.

7) Claim(s) 7,9,10,12,20,22 and 23 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 30 January 2004 is/are: a) accepted or b) objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1-30-04.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .
5) Notice of Informal Patent Application (PTO-152)
6) Other: ____ .

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4, 5, 6, 13, 17, 18, 19, 26, 27, and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 4 recites the limitation "which physical quantity" in line 7. There is insufficient antecedent basis for this limitation in the claim. Is this referring to the "physical quantity" mentioned in line 6?

5. Claim 5 recites the limitation "which physical quantity" in lines 7 and 13. There is insufficient antecedent basis for this limitation in the claim. Is this referring to the "physical quantity" mentioned in lines 6 and 12, respectively?

6. Claim 13 recites the limitation "the other wheel" in line 4. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 13 recites the limitation "the resultant force" in line 7. There is insufficient antecedent basis for this limitation in the claim. The bounds of the claim cannot be

determined as it currently written. With all the commas it is impossible to tell what each phrase is referring to.

8. Claim 17 recites the limitation "which physical quantity" in line 7. There is insufficient antecedent basis for this limitation in the claim. Is this referring to the "physical quantity" mentioned in line 6?

9. Claim 18 recites the limitation "which physical quantity" in lines 8 and 14. There is insufficient antecedent basis for this limitation in the claim. Is this referring to the "physical quantity" mentioned in lines 7 and 13, respectively?

10. Claim 26 recites the limitation "the other wheel" in line 5. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 26 recites the limitation "the resultant force" in line 7. There is insufficient antecedent basis for this limitation in the claim. The bounds of the claim cannot be determined as it currently written. With all the commas it is impossible to tell what each phrase is referring to.

12. Claim 27 recites the limitation "the other wheel" in line 22. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 27 recites the limitation "the resultant force" in line 25. There is insufficient antecedent basis for this limitation in the claim. The bounds of the claim cannot be determined as it currently written. With all the commas it is impossible to tell what each phrase is referring to.

14. The remaining claims are rejected for being dependant on an indefinite claim.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. Claims 1, 2, 3, 8, 11, 14, 15, 16, 21, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Anwar, 6885931.

17. Anwar discloses calculating a physical quantity which relates to a tire force of each wheel and optimizes an effective road friction of each wheel, based on a target resultant force to be applied to a vehicle body in order to obtain vehicle body motion that a driver desires, and a constraint including as parameters a magnitude of a critical friction circle of each wheel in equations 31-34; calculating, based on the calculated physical quantity relating to the tire force of each wheel, a first control variable for controlling at least one of braking force and driving force of each wheel, or a second control variable for controlling the first control variable and a steering angle of each wheel; and controlling (A) the at least one of braking force and driving force of each wheel based on the first control variable, or controlling (A) the at least one of braking force and driving force of each wheel and (B) the steering angle of each wheel based on the first and second control variables on lines 34-36, on column 1; the constraint is represented by a formula indicating that no resultant force is generated in a direction

orthogonal to a direction of the target resultant force, and a formula indicating that a moment around the center of gravity of the vehicle is equal to a desired moment and the constraint is represented by formulae, the number of which is less than that of wheels, or a linearized formula in equation 30, the constraint that no resultant force is orthogonal to a direction of the target resultant force is inherent; the magnitude of the critical friction circle of each wheel is determined based on an estimate or a virtual value of μ of each wheel and a load of each wheel in lines 20-25, on column 8; and the steering angle is controlled to be the same for the right and left wheels in figure 1.

Allowable Subject Matter

18. Claims 7, 9, 10, 12, 20, 22, 23, and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
19. Claims 4, 5, 6, 17, 18, 19, 13, and 26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
20. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose the target resultant force is represented by a secondary performance function including the magnitude of the critical friction circle of each wheel and the physical quantity relating to the tire force of each wheel; the effective road friction of each wheel, the calculated direction of the tire force of each wheel, and the magnitude of the critical friction circle of each wheel are used to calculate a slip angle based on a brush model, and the calculated slip angle is used to

calculate the second control variable based on a vehicle motion model; the direction of the tire force which optimizes the effective road friction of each wheel is one of a direction of the tire force which uniformly minimizes the effective road friction of each wheel, a direction of the tire force which makes the effective road friction of a front wheel differ from that of a rear wheel, and a direction of the tire force which makes a magnitude of the tire force of each wheel proportional to the load of the wheel.

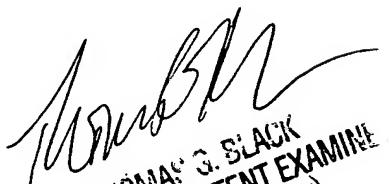
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Broadhead whose telephone number is 571-272-6957. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


BJB


THOMAS G. SLACK
SUPERVISORY PATENT EXAMINER
GROUP 3661